

# STEWART'S OPERATIVE UROLOGY

Volume Two

LOWER URINARY TRACT,  
PELVIC STRUCTURES, and  
MALE REPRODUCTIVE SYSTEM

Second Edition

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ANDREW C. NOVICK

STEVAN B. STREEM  
J. EDSON PONTES



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Senior Editor

**ANDREW C. NOVICK, M.D.**

Chairman, Department of Urology  
The Cleveland Clinic Foundation  
Cleveland, Ohio

Associate Editors

**STEVAN B. STREEM, M.D.**

Department of Urology  
The Cleveland Clinic Foundation  
Cleveland, Ohio

**J. EDSON PONTES, M.D.**

Department of Urology  
The Cleveland Clinic Foundation  
Cleveland, Ohio



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# Preface to the Second Edition

The first edition of *Operative Urology*, published in 1975 and 1982 as two separate volumes, was extremely well received by urology residents, practitioners, and academicians. The strength of this work was in providing detailed, well-illustrated, step-by-step instruction in the performance of all major operations within our specialty. In the preface to the first edition, Dr. Stewart wrote: "With the passage of time, many of the procedures described herein will undoubtedly become obsolete. Our greatest satisfaction will come when future advances in surgery make necessary a major revision of this text." There is little doubt that the surgical approach to many urologic problems has changed significantly during the past several years. It is our hope that this expanded second edition of *Stewart's Operative Urology* will provide a complete compendium of modern urologic operations in the same effective style and format as the outstanding first edition.

This work is also intended to honor the memory of a dear

friend and colleague, Bruce H. Stewart, M.D. With his untimely passing, the urologic community lost one of its most talented clinicians and educators. Those of us who had the privilege of working with Dr. Stewart considered him to be a role model and, to this day, we are guided by his teachings and practices. The publication of the first edition of *Operative Urology* was one of Dr. Stewart's most gratifying accomplishments. At the time of his death, he was planning a new edition and had begun to revise the chapters on adrenal surgery. The second edition of Stewart's *Operative Urology* includes contributions from many former residents and colleagues of Dr. Stewart whose efforts blend together in a fitting tribute to him.

*Andrew D. Novick, M.D.*  
for the Editors

# Preface to the First Edition

Surgery of the lower urinary tract and male reproductive system was performed in early civilizations as long as 5000 years ago, making urology one of the oldest of surgical disciplines.\* Egyptian physicians from 3000 to 1550 B.C. recorded the use of catheters, knives, and uterine sounds made of bronze and tin, for ritualistic circumcision and other procedures. The ancient Hindus around 1000 B.C. suggested tubes of various sizes made of gold, iron, wood, or lac smeared with ghee for dilating the urethra. The early Chinese from 100 B.C. to 1000 A.D. made catheters of hollow leaves of the allium fistulosum, and performed total emasculation upon young males in order to prepare them for their function as eunuchs in the royal harem. Perineal cystolithotomy was originated by the Egyptians and Hindus, was well known before the time of Hippocrates (for in his oath he stipulates among other things that he will not cut for stone), and was continued through the middle ages after the first accurate description of the procedure by Celcus in 25 B.C. The perineal technique was carried out by relatively skilled lithotomists in Europe and the Middle East for several centuries, and by the seventeenth century suprapubic operations were also described for removal of stones or bladder tumors. Celcus also described an ingenious technique or urethrolithotomy before the birth of Christ, and various instruments were later developed for the treatment of urethral stricture, perhaps the most ingenious being that of the urethrotome described by Otis in 1878. Bigelow, in 1878, perfected a technique of litholapaxy, utilizing his revolutionary lithotrite and evacuator which stood the test of time until newer, visually controlled instruments were developed nearly a century later. The early instruments for dilating and removing bits of prostate gland developed into the fenestrated cold punch instrument popularized by Hugh Young in the early 1900's, and eventually culminated in the development of the modern resectoscope by Stern, McCarthy, and others in the late 1920's and 1930's.

The basic contributions of John Hunter, Crawford Long, and Lord Lister in the last century more than anything else

revolutionized and converted surgery into a sound science as well as a delicate and predictable art. By utilization of their basic principles, new instruments and procedures have appeared exponentially from the turn of the century until the present time. Although many procedures have remained relatively standard for many decades, the antibiotic era, refinement of vascular and microsurgical techniques, recognition of the field of neurourology, and the development of implantable devices has led to a host of new techniques and procedures that now enhance the armamentarium of the modern urologist.

It is not the purpose of this book to review all of the available procedures for dealing surgically with various diseases of the bladder, prostate, structures in the pelvis, and male reproductive system. Nor is it our intention to describe in detail the nature and management of major disease processes involving these areas. Rather, we have attempted to assemble and describe those procedures that experience has led us to believe are most effective in dealing with abnormalities in this often controversial field. Selection of what we now judge to be the procedures of choice comes not only from evaluation of the work of surgeons around the world, but also from a rich heritage gained from our predecessors at the Cleveland Clinic Foundation. The early work of Lower, Higgins, and Engle has provided an inspiring background for the present authors.

The procedures described herein reflect the surgical training that all Urology Residents now receive at the Cleveland Clinic Foundation. It is our belief that modern urologists should be thoroughly familiar with the great vessels and their branches, and be able to use vascular and microscopic techniques whenever indicated. Likewise, general principles of intestinal surgery should be understood and incorporated into various urinary reconstructive procedures when necessary. Close cooperation with other surgical specialists, when necessary in difficult and extensive cases, may often provide the margin between success and failure.

This book will present a philosophy of operative urology which should be of particular value to the Resident in training. Hopefully, it will also provide experienced urologists with ideas on technique that can be incorporated into an already-established surgical practice. With the passage of time, many of the procedures described in this text will undoubtedly become obsolete, and our greatest satisfaction will come when future advances in the field make necessary a major revision of this book.

Bruce H. Stewart, M.D.

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\* To those students interested in the development of urological surgery through the ages and into modern times, the following references are recommended:

1. *History of Urology*: prepared under the auspices of the American Urological Association; Editorial Committee: Edgar G. Ballenger, William A. Frontz, Homer G. Hames, and Branford Lewis; Volumes I and II. Williams & Wilkins, Baltimore, 1933.

2. *The History of Urology*: Leonard J.T. Murphy. Charles C. Thomas, Publisher, Springfield, Ill., 1972.

3. *Urology: A View through the Retrospectroscope*: John R. Herman. Medical Department, Harper & Row, Hagerstown, Md., 1973.

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# Contributors

## *Contributors From Cleveland Clinic Foundation*

**Peter N. Bretan, Jr., M.D.**

Department of Urology

**Michael A. Geisinger, M.D.**

Section of Vascular and Interventional Radiology  
Department of Diagnostic Radiology

**Ernest E. Hodge, M.D.**

Department of Urology

**Robert Kay, M.D.**

Head, Section of Pediatric Urology  
Department of Urology

**Ian C. Lavery, M.D.**

Department of Colon and Rectal Surgery

**Drogo K. Montague, M.D.**

Head, Section of Urodynamics and Prosthetic Surgery  
Department of Urology

**James E. Montie, M.D.**

Department of Urology  
Cleveland Clinic Foundation—Florida

**Andrew C. Novick, M.D.**

Chairman, Department of Urology

**J. Edson Pontes**

Head, Section of Urologic Oncology  
Department of Urology

**Barbara Risius, M.D.**

Section of Vascular and Interventional Radiology  
Department of Diagnostic Radiology

**Steven W. Siegel, M.D.**

Department of Urology

**Bruce H. Stewart, M.D. (deceased)**

Former Chairman, Division of Surgery  
Department of Urology

**Ralph A. Straffon, M.D.**

Vice Chairman, Board of Governors  
Chief of Staff  
Department of Urology

**Stevan B. Stroom, M.D.**

Head, Section of Stone Disease and Endourology  
Department of Urology

**Anthony J. Thomas, Jr., M.D.**

Head, Section of Male Infertility  
Department of Urology

**Margaret G. Zelch, M.D.**

Head, Section of Vascular and Interventional Radiology  
Department of Diagnostic Radiology

## *Contributors From Other Institutions*

**Lynn H. W. Banowsky, M.D.**

Chief, Renal Transplantation  
Humana Hospital  
San Antonio, Texas

**John M. Barry, M.D.**

Professor of Surgery  
Chairman, Division of Urology  
Director, Section of Surgical Transplantation  
Oregon Health Sciences University  
Portland, Oregon

**Charles J. Devine, Jr., M.D.**

Professor of Urology  
Eastern Virginia Medical School  
Norfolk, Virginia

**Patrick C. Devine, M.D.**

Professor of Urology  
Eastern Virginia Medical School  
Norfolk, Virginia

**John P. Donohue, M.D.**

Professor and Chairman  
Department of Urology  
Indiana University Medical Center  
Indianapolis, Indiana

**Thomas R. Hatch, M.D.**

Assistant Professor  
Division of Urology  
Oregon Health Sciences University  
Portland, Oregon

**Thomas R. Hefty, M.D.**

Assistant Professor  
Division of Urology  
Oregon Health Sciences Center  
Portland, Oregon

**Charles E. Horton, M.D.**

Professor of Plastic Surgery  
Eastern Virginia Medical School  
Norfolk, Virginia

**Eric A. Klein, M.D.**

Fellow, Urology Service  
Memorial Sloan-Kettering Cancer Center  
New York, New York

**James S. Krieger, M.D.**

Emeritus, Cleveland Clinic Foundation  
Sanibel, Florida



**Richard M. Lewis, M.D.**

Assistant Professor  
Division of Urology and Division of Immunology and  
Organ Transplantation  
University of Texas Health Science Center  
Houston, Texas

**John A. Libertino, M.D.**

Chairman, Division of Surgery  
Department of Urology  
Lahey Clinic  
Boston, Massachusetts

**Michael J. Malone**

Chief Resident  
Department of Urology  
Lahey Clinic  
Boston, Massachusetts

**Michael Marberger, M.D.**

Professor, Department of Urology  
Rudolfstiftung Hospital  
Vienna, Austria

**Jack W. McAninch, M.D.**

Professor of Urology  
University of California  
Chief of Urology  
San Francisco General Hospital  
San Francisco, California

**Mark J. Noble, M.D.**

Associate Professor, Section of Urology  
Department of Surgery  
University of Kansas Medical Center  
Attending Staff Urologist  
Kansas City Veterans Administration Hospital  
Kansas City, Kansas

**Donald E. Novicki, M.D.**

Associate Professor of Surgery (Urology)  
University of Texas Health Science Center  
San Antonio, Texas

**Joseph Ortenberg, M.D.**

Assistant Professor  
Departments of Urology and Pediatrics  
Louisiana School of Medicine  
New Orleans, Louisiana

**Lester Persky, M.D.**

Clinical Professor  
University of South Florida  
Tampa, Florida

**James M. Pierce, Jr., M.D.**

Professor and Chairman  
Department of Urology  
Wayne State University  
Detroit, Michigan

**Martin I. Resnick, M.D.**

Professor and Chairman  
Division of Urology  
Case Western Reserve University  
School of Medicine  
Cleveland, Ohio

**J. Patrick Spirnak, M.D.**

Assistant Professor  
Division of Urologic Surgery  
Case Western Reserve University  
Director, Urology  
Metropolitan General Hospital  
Cleveland, Ohio

# Contents

## VOLUME ONE

|                                     |     |
|-------------------------------------|-----|
| Preface to the Second Edition ..... | v   |
| Preface to the First Edition .....  | vii |
| Acknowledgments .....               | ix  |
| Contributors .....                  | xi  |

---

### Section 1. General Information

|           |   |    |
|-----------|---|----|
| Chapter 1 | <b>Surgical Anatomy</b> .....                     | 2  |
|           | Lynn H. W. Banowsky, M.D.                         |    |
| Chapter 2 | <b>Surgical Incisions</b> .....                   | 15 |
|           | Drogo K. Montague, M.D.                           |    |
| Chapter 3 | <b>Basic Techniques of Vascular Surgery</b> ..... | 41 |
|           | Lynn H. W. Banowsky, M.D.                         |    |
| Chapter 4 | <b>Renal Hypothermia In Situ</b> .....            | 51 |
|           | Michael Marberger, M.D.                           |    |
| Chapter 5 | <b>Omentum in Urologic Surgery</b> .....          | 60 |
|           | James M. Pierce, Jr., M.D.                        |    |

---

### Section 2. Operations Upon the Adrenal Gland

|           |   |    |
|-----------|---|----|
| Chapter 6 | <b>Posterior Approach to the Adrenal Gland</b> .....                    | 68 |
|           | Andrew C. Novick, M.D.  |    |
| Chapter 7 | <b>Anterior Approach to the Adrenal Gland</b> .....                     | 76 |
|           | Andrew C. Novick, M.D.<br>Bruce H. Stewart, M.D.                        |    |
| Chapter 8 | <b>Flank and Thoracoabdominal Approaches to the Adrenal Gland</b> ..... | 88 |
|           | Andrew C. Novick, M.D.<br>Bruce H. Stewart, M.D.                        |    |

---

### Section 3. Surgery for Malignant Renal Disorders

|            |  |     |
|------------|--|-----|
| Chapter 9  | <b>Radical Nephrectomy</b> .....   | 98  |
|            | J. Edson Pontes, M.D.  |     |
| Chapter 10 | <b>Surgery for Renal Carcinoma Involving the Inferior Vena Cava</b> .....      | 104 |
|            | Andrew C. Novick, M.D.<br>James E. Montie, M.D.                                |     |
| Chapter 11 | <b>Partial Nephrectomy for Renal Cell Carcinoma</b> .....                      | 115 |
|            | Andrew C. Novick, M.D.   |     |
| Chapter 12 | <b>Conservative Surgery for Renal Pelvic Transitional Cell Carcinoma</b> ..... | 126 |
|            | Andrew C. Novick, M.D.<br>Stevan B. Streem, M.D.                               |     |

---

## Section 4. Surgery for Renal Calculous Disease

|            |   |     |
|------------|---|-----|
| Chapter 13 | <b>Insertion of Percutaneous Nephrostomy and Related Procedures</b> . . . . . | 136 |
|            | Michael A. Geisinger, M.D.  |     |
| Chapter 14 | <b>Percutaneous Extraction of Renal Calculi</b> . . . . .                     | 153 |
|            | Stevan B. Stroom, M.D.  |     |
|            | Margaret G. Zelch, M.D.   |     |
|            | Barbara Risius, M.D.  |     |
|            | Michael A. Geisinger, M.D.  |     |
| Chapter 15 | <b>Extracorporeal Shock Wave Lithotripsy</b> . . . . .                        | 164 |
|            | Stevan B. Stroom, M.D.  |     |
| Chapter 16 | <b>Pyelolithotomy</b> . . . . .   | 184 |
|            | J. Patrick Spirnak, M.D.  |     |
|            | Martin I. Resnick, M.D.   |     |
| Chapter 17 | <b>Anatrophic Nephrolithotomy</b> . . . . .                                   | 191 |
|            | Ralph A. Straffon, M.D.   |     |
| Chapter 18 | <b>Operative Nephroscopy</b> . . . . .  | 198 |
|            | Donald E. Novicki, M.D.   |     |

---

## Section 5. Surgery for Other Benign Renal Disorders

|            |  |     |
|------------|--|-----|
| Chapter 19 | <b>Simple Nephrectomy</b> . . . . .                                | 202 |
|            | Drogo K. Montague, M.D.  |     |
| Chapter 20 | <b>Partial Nephrectomy for Benign Disease</b> . . . . .            | 211 |
|            | Mark J. Noble, M.D.  |     |
| Chapter 21 | <b>Procedures for Ureteropelvic Junction Obstruction</b> . . . . . | 220 |
|            | Robert Kay, M.D.   |     |
| Chapter 22 | <b>Surgery for Renal Trauma</b> . . . . .                          | 234 |
|            | Jack W. McAninch, M.D.   |     |
| Chapter 23 | <b>Miscellaneous Renal Operations</b> . . . . .                    | 240 |
|            | Mark J. Noble, M.D.  |     |

---

## Section 6. Renal Vascular Surgery

|            |  |     |
|------------|--|-----|
| Chapter 24 | <b>Aortorenal Bypass</b> . . . . .   | 250 |
|            | Andrew C. Novick, M.D.   |     |
| Chapter 25 | <b>Hepatorenal Bypass</b> . . . . .  | 267 |
|            | John A. Libertino, M.D.  |     |
|            | Michael J. Malone  |     |
| Chapter 26 | <b>Splenorenal Bypass</b> . . . . .  | 273 |
|            | Andrew C. Novick, M.D.   |     |
| Chapter 27 | <b>Iliorenal and Mesenterorenal Bypass</b> . . . . .                             | 279 |
|            | Andrew C. Novick, M.D.   |     |
| Chapter 28 | <b>Extracorporeal Microvascular Branch Renal Artery Reconstruction</b> . . . . . | 285 |
|            | Andrew C. Novick, M.D.   |     |

---

## Section 7. Renal Transplantation

|            |   |     |
|------------|---|-----|
| Chapter 29 | <b>Cadaver Donor Nephrectomy</b> .....          | 294 |
|            | John M. Barry, M.D.                             |     |
| Chapter 30 | <b>Extracorporeal Renal Preservation</b> .....  | 301 |
|            | Peter N. Bretan, Jr., M.D.                      |     |
| Chapter 31 | <b>Live Donor Nephrectomy</b> .....             | 312 |
|            | Stevan B. Stroom, M.D.                          |     |
| Chapter 32 | <b>Technique of Renal Transplantation</b> ..... | 324 |
|            | Andrew C. Novick, M.D.                          |     |
| Chapter 33 | <b>Transplant Nephrectomy</b> .....             | 341 |
|            | Richard M. Lewis, M.D.                          |     |
| Chapter 34 | <b>Dialysis Access Surgery</b> .....            | 345 |
|            | Thomas R. Hefty, M.D.                           |     |
|            | Thomas R. Hatch, M.D.                           |     |
|            | John M. Barry, M.D.                             |     |

---

## Section 8. Operative Procedures in the Retroperitoneum

|            |   |     |
|------------|---|-----|
| Chapter 35 | <b>Retroperitoneal Lymphadenectomy</b> .....        | 362 |
|            | John P. Donohue, M.D.                               |     |
| Chapter 36 | <b>Operations on the Ureter</b> .....               | 368 |
|            | Ernest E. Hodge, M.D.                               |     |
| Chapter 37 | <b>Intestinal Ureteral Replacement</b> .....        | 381 |
|            | Andrew C. Novick, M.D.                              |     |
| Chapter 38 | <b>Endourologic Techniques for the Ureter</b> ..... | 389 |
|            | Stevan B. Stroom, M.D.                              |     |

---

## Section 9. Supravesical Urinary Diversion

|            |  |     |
|------------|--|-----|
| Chapter 39 | <b>Ureterosigmoidostomy</b> .....        | 408 |
|            | Ralph A. Straffon, M.D.                  |     |
| Chapter 40 | <b>Cutaneous Ureterostomy</b> .....      | 415 |
|            | Ralph A. Straffon, M.D.                  |     |
| Chapter 41 | <b>Cutaneous Urinary Diversion</b> ..... | 425 |
|            | James E. Montie, M.D.                    |     |
| Chapter 42 | <b>Colon Conduit</b> .....               | 445 |
|            | Robert Kay, M.D.                         |     |

## VOLUME TWO

### Section 10. General Information

|            |  |     |
|------------|--|-----|
| Chapter 43 | <b>Anatomy and Embryology</b> .....                    | 454 |
|            | Steven W. Siegel, M.D.                                 |     |
| Chapter 44 | <b>Operative Approaches to Pelvic Structures</b> ..... | 479 |
|            | James E. Montie, M.D.                                  |     |
| Chapter 45 | <b>Lymphadenectomy Techniques</b> .....                | 486 |
|            | J. Edson Pontes, M.D.                                  |     |

### Section 11. Operations Upon the Bladder

|            |  |     |
|------------|--|-----|
| Chapter 46 | <b>Radical Cystectomy</b> .....                        | 492 |
|            | James E. Montie, M.D.                                  |     |
| Chapter 47 | <b>Partial Resection of the Bladder</b> .....          | 503 |
|            | Andrew C. Novick, M.D.<br>Robert Kay, M.D.             |     |
| Chapter 48 | <b>Augmentation Cystoplasty</b> .....                  | 510 |
|            | Andrew C. Novick, M.D.                                 |     |
| Chapter 49 | <b>Bladder Replacement Operations</b> .....            | 520 |
|            | J. Edson Pontes, M.D.<br>James E. Montie, M.D.         |     |
| Chapter 50 | <b>Reimplantation of the Ureter</b> .....              | 526 |
|            | Robert Kay, M.D.                                       |     |
| Chapter 51 | <b>Repair of Bladder Fistulae</b> .....                | 539 |
|            | James S. Krieger, M.D.<br>Ian C. Lavery, M.D.          |     |
| Chapter 52 | <b>Miscellaneous Bladder Procedures</b> .....          | 552 |
|            | Eric A. Klein, M.D.                                    |     |
| Chapter 53 | <b>Reconstruction for Bladder Exstrophy</b> .....      | 565 |
|            | Joseph Ortenberg, M.D.                                 |     |
| Chapter 54 | <b>Transurethral Removal of Bladder Calculi</b> .....  | 571 |
|            | Stevan B. Stroom, M.D.                                 |     |
| Chapter 55 | <b>Transurethral Resection of Bladder Tumors</b> ..... | 576 |
|            | James E. Montie, M.D.                                  |     |
| Chapter 56 | <b>Transurethral Management of Ureterocele</b> .....   | 582 |
|            | Lynn H. W. Banowsky, M.D.                              |     |

### Section 12. Operations Upon the Prostate Gland

|            |  |     |
|------------|--|-----|
| Chapter 57 | <b>Transurethral Prostatectomy</b> ..... | 586 |
|            | Ralph A. Straffon, M.D.                  |     |
| Chapter 58 | <b>Suprapubic Prostatectomy</b> .....    | 601 |
|            | Lynn H. W. Banowsky, M.D.                |     |
| Chapter 59 | <b>Perineal Prostatectomy</b> .....      | 608 |
|            | Lester Persky, M.D.                      |     |

|                         |    |   |     |
|-------------------------|----|---|-----|
| Chapter                 | 60 | <b>Simple Retropubic Prostatectomy</b> .....  | 616 |
| Ralph A. Straffon, M.D. |    |   |     |
| Chapter                 | 61 | <b>Radical Retropubic Prostatectomy</b> ..... | 621 |
| J. Edson Pontes, M.D.   |    |   |     |

---

### Section 13. Operations Upon Paravesical Structures

|                              |    |   |     |
|------------------------------|----|---|-----|
| Chapter                      | 62 | <b>Seminal Vesiculectomy</b> .....        | 626 |
| Eric A. Klein, M.D.          |    |   |     |
| Chapter                      | 63 | <b>Artificial Urinary Sphincter</b> ..... | 631 |
| Drogo K. Montague, M.D.      |    |   |     |
| Chapter                      | 64 | <b>Surgery for Varicocele</b> .....       | 642 |
| Anthony J. Thomas, Jr., M.D. |    |   |     |

---

### Section 14. Operations Upon the Urethra

|   |    |   |     |
|---|----|---|-----|
| Chapter   | 65 | <b>Operations for Urethral Stricture</b> .....                        | 650 |
| Charles J. Devine, Jr., M.D.<br>Patrick C. Devine, M.D. |    |   |     |
| Chapter   | 66 | <b>Transurethral Management of Complete Urethral Disruption</b> ..... | 681 |
| Stevan B. Stroom, M.D.                                  |    |   |     |
| Chapter   | 67 | <b>Transurethral Ablation of Posterior Urethral Valves</b> .....      | 683 |
| Joseph Ortenberg, M.D.                                  |    |   |     |
| Chapter   | 68 | <b>Repair of Hypospadias and Epispadias</b> .....                     | 689 |
| Charles J. Devine, Jr., M.D.<br>Charles E. Horton, M.D. |    |   |     |
| Chapter   | 69 | <b>Surgery for Stress Urinary Incontinence</b> .....                  | 715 |
| Steven W. Siegel, M.D.<br>Drogo K. Montague, M.D.       |    |   |     |
| Chapter   | 70 | <b>Urethrectomy</b> .....   | 726 |
| James E. Montie, M.D.                                   |    |   |     |
| Chapter   | 71 | <b>Urethral Diverticulectomy</b> .....                                | 732 |
| Eric A. Klein, M.D.                                     |    |   |     |

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### Section 15. Operations Upon the Genitalia

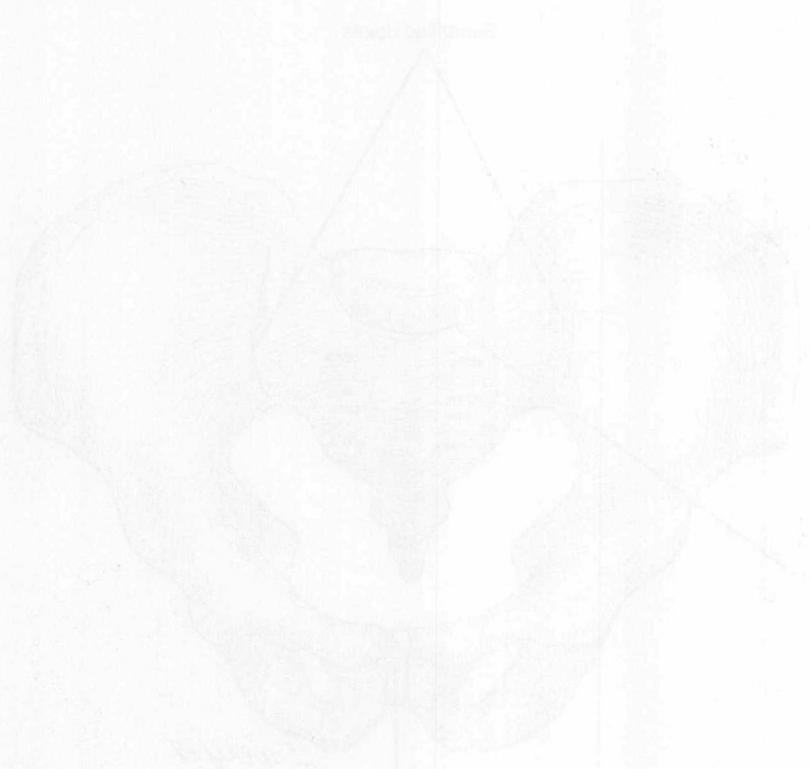
|                              |    |  |     |
|------------------------------|----|--|-----|
| Chapter                      | 72 | <b>Surgery of the Scrotum</b> .....                              | 746 |
| Steven W. Siegel, M.D.       |    |  |     |
| Chapter                      | 73 | <b>Surgery of the Testis</b> .....                               | 755 |
| Robert Kay, M.D.             |    |  |     |
| Chapter                      | 74 | <b>Vasovasostomy</b> .....                                       | 767 |
| Anthony J. Thomas, Jr., M.D. |    |  |     |
| Chapter                      | 75 | <b>Vasovasostomy</b> .....                                       | 774 |
| Anthony J. Thomas, Jr., M.D. |    |  |     |
| Chapter                      | 76 | <b>Other Operations on the Vas Deferens and Epididymis</b> ..... | 782 |
| Steven W. Siegel, M.D.       |    |  |     |

|            |   |     |
|------------|---|-----|
| Chapter 77 | <b>Penectomy</b> .....                      | 792 |
|            | James E. Montie, M.D.                       |     |
| Chapter 78 | <b>Penile Prosthesis</b> .....              | 796 |
|            | Drogo K. Montague, M.D.                     |     |
| Chapter 79 | <b>Surgery for Peyronie's Disease</b> ..... | 811 |
|            | Charles J. Devine, Jr., M.D.                |     |
| Chapter 80 | <b>Circumcision and Dorsal Slit</b> .....   | 819 |
|            | Steven W. Siegel, M.D.                      |     |
| Chapter 81 | <b>Correction of Chordee</b> .....          | 822 |
|            | Drogo K. Montague, M.D.                     |     |
| Chapter 82 | <b>Surgery for Priapism</b> .....           | 826 |
|            | Anthony J. Thomas, Jr., M.D.                |     |
| Index      | .....                                       | 833 |



# General Information

STEVEN W. SIEGEL

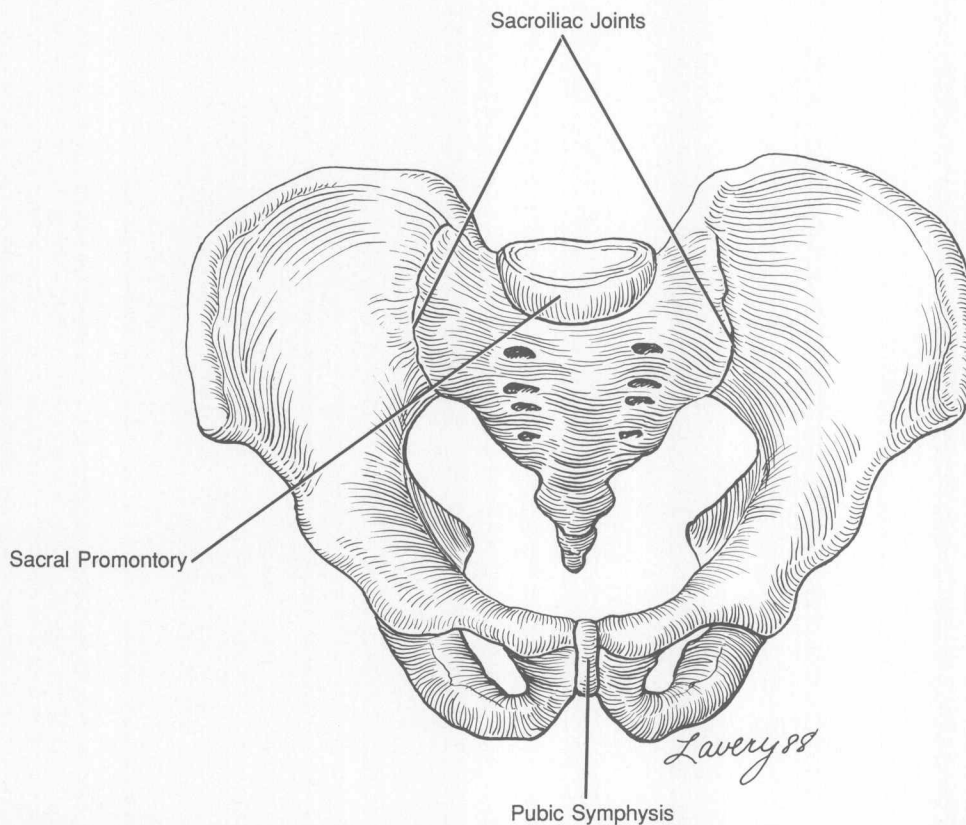


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# Anatomy and Embryology

STEVEN W. SIEGEL



**Figure 43.1. Bone Structure.** The bony pelvis consists of three bones and three joints. The bones are the two hip bones and the sacrum. The joints are the two sacroiliac joints and the symphysis pubis. The landmarks of the pelvic brim are the

pubic symphysis anteriorly, the sacral promontory posteriorly, and the junctions between the ilium, ischium, and pubic symphysis.